



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 10/021,097
Filed: 12/12/01
Applicant: Ghamaty, et al
For: Thermoelectric Device with Si/SiC Superlattice N-Legs

Examiner: Soward, Ida M
Group Art: 2822

Commissioner of Patents and Trademarks
Washington, DC 20231

Mailed 12/27/02

#6/A
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Sir:

This letter is in response to Office Action mailed 10/1/02. Please amend the above-identified application as follows:

In the Drawings:

Please amend FIGS. 1-1B by adding – Prior Art—as shown circled in red on the attached copy of the first drawing sheet.

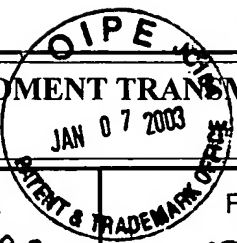
In the Specification:

Please amend the second paragraph of the background section as follows:

A1
The present inventors have actually demonstrated that high ZT values can definitely be achieved with Si/Si_{0.8}Ge_{0.2} superlattice quantum well (See, for example, US Patent No. 5,550,387.) Most of the efforts to date with superlattices have involved alloys that are known to be good thermoelectric materials for cooling, many of which are difficult to manufacture as superlattices. The present inventors have had issued to them United States patents in 1995 and 1996 which disclose such materials and explain how to make them. These patents (which are hereby incorporated by reference herein) are US Patent Nos.: 5,436,467, 5,550,387. FIGS. 1A and 1B herein were FIGS. 3 and 5 of the '467 patent. A large number of very thin layers (in the '467 patent, about 250,000 layers) together produce a thermoelectric leg 10 about 0.254 cm thick. In the embodiment shown in the figures all the legs are connected electrically in series using sprayed-on metal layers 14 and otherwise are insulated from each other in an egg-crate type thermoelectric element as shown in FIG. 1A. As shown by arrows 30 in FIG. 1B current flows from the cold side to the hot side through P legs 12 and from the hot side to the cold side through

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AMENDMENT TRANSMITTAL LETTER (Small Entity)		Docket No.	
Applicant(s):			
Serial No. 10/021,097	Filing Date 12/12/11	Examiner SOWARD, IDA	Group Art Unit 2822



Invention: *thermoelectric device with Si/SiC superlattice N-Region*

TO THE ASSISTANT COMMISSIONER FOR PATENTS:

Transmitted herewith is an amendment in the above-identified application.

- ☐ Small Entity status of this application has been established under 37 CFR 1.27 by a verified statement previously submitted.
- ☐ A verified statement to establish Small Entity status under 37 FR 1.27 is enclosed.

The fee has been calculated and is transmitted as shown below.

CLAIMS AS AMENDED					
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST # PREV. PAID FOR	NUMBER EXTRA CLAIMS PRESENT	RATE	ADDITIONAL FEE
TOTAL CLAIMS	-	20 =	0 x	\$9.00	\$0.00
INDEP. CLAIMS	-	3 =	0 x	\$42.00	\$0.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT					\$0.00

- ☒ No additional fee is required for amendment.
- ☐ Please charge Deposit Account No. _____ in the amount of _____
A duplicate copy of this sheet is enclosed.
- ☐ A check in the amount of _____ to cover the filing fee is enclosed.
- ☐ The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. _____
A duplicate copy of this sheet is enclosed.
 - ☐ Any additional filing fees required under 37 C.F.R. 1.16.
 - ☐ Any patent application processing fees under 37 CFR 1.17.

John R. Ross

Signature

Dated:

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I certify that this document and fee is being deposited on <u>12/27/12</u> with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.	
<i>John R. Ross</i>	
Signature of Person Mailing Correspondence	
JOHN R. ROSS	
Typed or Printed Name of Person Mailing Correspondence	

cc: